Final
Environmental Assessment (EA): Proposed Thermal Spray Addition, Building 505, Hill Air Force Base, Utah

Contract GS-35F0065J, Order #0740

General Services Administration, and Department of the Air Force
Air Force Materiel Command
Hill Air Force Base, Utah 84056

November 13, 2003

Prepared in accordance with the Department of the Air Force Environmental Impact Analysis Process (EIAP) 32 CFR Part 989, Effective July 6, 1999, which implements the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) regulations.

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FINDING OF NO SIGNIFICANT IMPACT

1. **NAME OF ACTION:** Construct a thermal spray addition to Building 505 at Hill Air Force Base (AFB), Utah.

2. **DESCRIPTION OF THE PROPOSED ACTION:** Hill AFB proposes to accommodate current United States Air Force (USAF) missions by constructing a thermal spray addition to Building 505 on Hill AFB.

The proposed action includes all work necessary to construct a thermal spray addition to Building 505 at Hill AFB. The proposed addition would house a quantity of 8 spray booths, in which a tungsten carbide and cobalt based coating would be applied to landing gear and pneudraulic components using a thermal spray coating process. The proposed structure would consist of approximately 7,000 square feet situated on the north side of Building 505. The type of construction would be concrete panels and concrete floor to match the existing structure. Cargo doors would be located on the west and east sides of the addition. A monorail overhead crane system would be attached to the structure, and a dust collection system would be provided on the roof. Utilities and the thermal spray coating systems would be installed. During the construction process, an existing overhead power line and an existing buried water line would be protected and/or relocated.

3. **SELECTION CRITERIA:** The following criteria were used to assemble alternatives. The future facility and repair technology for surfaces of hydraulic and pneudraulic equipment and landing gear at Hill AFB should:

- be adjacent to the related activities of: parts storage; preparation of parts for coating; and final grinding after the coating process is completed;
- have sufficient space to house all of the required equipment;
- provide sufficient capacity to meet USAF mission objectives;
- be a technology that is approved by USAF technical orders;
- reduce rework due to inconsistencies in the coating process;
- reduce or eliminate the use of chromic acid in compliance with *Executive Order 13148 Section 502*; and
- be protective of facilities, human health, and the environment

4. **ALTERNATIVES CONSIDERED OTHER THAN THE PROPOSED ACTION:**

Under the no action alternative, it is predicted that Hill AFB may be unable to provide sufficient capacity for repair of landing gear and pneudraulic components of USAF aircraft. It is therefore possible that aircraft would be grounded, and mission requirements for sorties would not be met.

Hill AFB planners and engineers evaluated several alternative locations and technologies for coating of landing gear and pneudraulic components. These alternatives were not

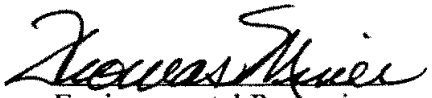
retained for detailed consideration due to logistical issues such as proximity to related processes, and lack of USAF approval for alternative technologies.

5. SUMMARY OF ANTICIPATED ENVIRONMENTAL EFFECTS:

a. Proposed Action: This alternative fully satisfies all applicable regulations and provides for accomplishment of mission objectives without significant impacts to human health or the environment. The proposed action could be implemented with minor environmental impacts. Following the construction phase, backfill and paving operations would prevent erosion of the site. The proposed action could be implemented with minor air emissions of both short term and long term duration. The proposed action would be expected to reduce indoor air exposures to workers who are responsible for overhaul and repair of landing gear and pneudraulic components in accordance with USAF technical order specifications. The small amounts of solid residue generated by the proposed action would not be expected to be classified as hazardous waste. The proposed action would significantly reduce hexavalent chromium and total chromium loading to the Hill AFB industrial wastewater treatment plant (IWTP). No adverse cumulative environmental impacts are expected.

b. No Action Alternative: Under the no action alternative, current conditions would continue. Opportunities to reduce potential worker exposures to chromium and loading to the IWTP would not be realized. Under the no action alternative, it is predicted that Hill AFB may be unable to provide sufficient capacity for repair of landing gear and pneudraulic components of USAF aircraft.

6. FINDING OF NO SIGNIFICANT IMPACT: Based on the above considerations, a Finding of No Significant Impact (FONSI) is appropriate for this assessment.

Approved by: 
Environmental Protection
Committee Chairman

Date: 5 Dec 03

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Approved by: _____ Date: 5 Dec 03

Environmental Protection
Committee Chairman

EXECUTIVE SUMMARY

Purpose and Need

The purpose of the proposed action is to accommodate current United States Air Force (USAF) missions by constructing a thermal spray addition to Building 505 at Hill Air Force Base (AFB). The thermal spray addition would house a quantity of 8 spray booths, in which a tungsten carbide and cobalt based coating would be applied to landing gear and pneudraulic components using a thermal spray coating process.

The proposed action is needed to meet operational requirements and to eliminate the potential for hexavalent chromium in Hill AFB wastewater sludge. As the average age of the USAF aircraft fleet increases, the requirement for repair of landing gear and pneudraulic components is also increasing, such that the required sortie rates can be met. Additional mission benefits would be gained because the proposed tungsten carbide cobalt coating is more wear resistant and corrosion resistant that chromium-based coatings, thereby reducing the frequency of parts being returned for subsequent repairs.

Scope of Review

No cultural and/or historical resources were identified within the area of the proposed action on Hill AFB property. No species of plants or animals listed as endangered, threatened, or sensitive by state or federal agencies were observed in or around the proposed excavation area, and no suitable habitat for any such species is likely to be disturbed by the project. No solid hazardous waste is expected to be generated by the project, but accidental spills of fuel, lubricants, or other chemicals during construction could occur. There is a potential for liquid and airborne hazardous waste streams to be generated by material coating processes.

The issues that were identified and analyzed in the document are: air quality (both indoor and outdoor air), solid and hazardous wastes, and physical environment (surface soils and groundwater). Environmental effects of the no action alternative were also considered.

Selection Criteria

The future facility and repair technology for surfaces of hydraulic and pneudraulic equipment and landing gear at Hill AFB should:

- be adjacent to the related activities of: parts storage; preparation of parts for coating; and final grinding after the coating process is completed;
- have sufficient space to house all of the required equipment;
- provide sufficient capacity to meet USAF mission objectives;
- be a technology that is approved by USAF technical orders;
- reduce rework due to inconsistencies in the coating process;
- reduce or eliminate the use of chromic acid in compliance with *Executive Order 13148 Section 502*; and

- be protective of facilities, human health, and the environment.

Proposed Action

Proposed Action - The proposed action includes all work necessary to construct a thermal spray addition to Building 505 at Hill AFB. The proposed addition would house a quantity of 8 spray booths, in which a tungsten carbide and cobalt based coating would be applied to landing gear and pneudraulic components using a thermal spray coating process. The proposed structure would consist of approximately 7,000 square feet situated on the north side of Building 505. The type of construction would be concrete panels and concrete floor to match the existing structure. Cargo doors would be located on the west and east sides of the addition. A monorail overhead crane system would be attached to the structure, and a dust collection system would be provided on the roof. Utilities and the thermal spray coating systems would be installed. During the construction process, an existing overhead power line and an existing buried water line would be protected and/or relocated.

No Action Alternative – Under the no action alternative, it is predicted that Hill AFB may be unable to provide sufficient capacity for repair of landing gear and pneudraulic components of USAF aircraft. It is therefore possible that aircraft would be grounded, and mission requirements for sorties would not be met.

Additional Alternatives - Hill AFB planners and engineers evaluated several alternative locations and technologies for coating of landing gear and pneudraulic components. These alternatives were not retained for detailed consideration due to logistical issues such as proximity to related processes, and lack of USAF approval for alternative technologies.

Results of the Environmental Assessment

The proposed action and the no action alternative were both considered in detail. The proposed action could be implemented with minor environmental impacts. Following the construction phase, backfill and paving operations would prevent erosion of the site. The proposed action could be implemented with minor air emissions of both short term and long term duration. The proposed action would be expected to reduce indoor air exposures to workers who are responsible for overhaul and repair of landing gear and pneudraulic components in accordance with USAF technical order specifications. The small amounts of solid residue generated by the proposed action would not be expected to be classified as hazardous waste. The proposed action would reduce hexavalent chromium and total chromium loading to the Hill AFB industrial wastewater treatment plant (IWTP). No cumulative environmental impacts are expected from either the proposed action or the no action alternative.

COMPARISON OF ALTERNATIVES

Issue	**Proposed Action** **Construct the Thermal Spray Addition to Building 505**	**No Action** **Do Not Construct the Addition**
Air Quality	Temporary construction-related emissions. Worker exposures may be reduced. Emissions of less than 0.017 pounds per year of HAPs would be expected.	Current conditions would continue.
Solid and Hazardous Wastes	Would not be generated as solids. Chromium and hexavalent chromium loading to the IWTP would be reduced.	Current conditions would continue.
Surface Soils	Construction-related erosion control measures may be required.	No impact.
Groundwater	No impact (contaminated groundwater is below the maximum depth of excavation).	No impact.

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LIST OF ACRONYMS AND CHEMICAL TERMS

AFB	Air Force Base
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
DAQ	Utah Division of Air Quality
EA	Environmental Assessment
EPA	United States Environmental Protection Agency
FONSI	Finding of No Significant Impact
HAP	Hazardous Air Pollutant
HEPA	High Efficiency Particulate Air
HVAF	High Velocity Air Fuel
HVOF	High Velocity Oxygen Fuel
IRP	Installation Restoration Program
IWTP	Industrial Wastewater Treatment Plant
MAN	Hill AFB Maintenance Directorate
NAAQS	National Ambient Air Quality Standards
NDCSD	North Davis County Sewer District
NEPA	National Environmental Policy Act
NO_x	Oxides of Nitrogen
O_3	Ozone
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PM-10	Particulates Smaller Than 10 Microns in Diameter
ppm	Parts Per Million
RCRA	Resource Conservation and Recovery Act
SO_2	Sulfur Dioxide
TCLP	Toxicity Characteristic Leaching Procedure
UAC	Utah Administrative Code
$\mu g/m^3$	Micrograms Per Cubic Meter
UPDES	Utah Pollutant Discharge Elimination System
USAF	United States Air Force
VOC	Volatile Organic Compound

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

Hill Air Force Base (AFB) is an air logistics center that maintains aircraft, missiles, and munitions for the United States Air Force (USAF). In support of that mission, Hill AFB: provides worldwide engineering and logistics management for the F-16 Fighting Falcon and A-10 Thunderbolt; accomplishes depot repair, modification, and maintenance of the F-16, A-10 Thunderbolt, and C-130 Hercules aircraft; and overhauls and repairs landing gear, wheels and brakes for military aircraft, rocket motors, air munitions, guided bombs, photonics equipment, training devices, avionics, instruments, hydraulics, software, and other aerospace related components.

This document addresses proposed construction activities related to the overhaul and repair of landing gear and pneudraulic components in accordance with USAF technical order specifications. The Commodities and Landing Gear Division of the Hill AFB Maintenance Directorate (the division's organizational designation is MAN) repairs hydraulic and pneudraulic equipment and landing gear for all USAF aircraft. During this process, damage and wear to exterior surfaces is repaired, and the surfaces are restored to their original dimensions. The traditional method to accomplish this repair employs aqueous chromium plating. This plating process uses chemical baths containing chromic acid (hexavalent chromium).

1.2 Purpose and Need

The purpose of the proposed action is to accommodate current USAF missions by constructing a thermal spray addition to Building 505 at Hill AFB. The thermal spray addition would house a total of 8 spray booths, in which a tungsten carbide and cobalt based coating would be applied to landing gear and pneudraulic components using a thermal spray coating process.

The proposed action is needed to meet operational requirements and to eliminate the potential for hexavalent chromium in Hill AFB wastewater sludge, as discussed in the paragraphs that follow.

As the average age of the USAF aircraft fleet increases, the requirement for repair of landing gear and pneudraulic components also increases. Currently, landing gear and pneudraulic components that require rebuilding to technical order specifications are chromium plated and then ground back to desired dimensions. There is a large volume of rework due to inconsistencies in the plating process. This rework decreases the throughput of parts compared to rates achievable using the new thermal spray technology. Additional mission benefits would be gained because the proposed tungsten carbide cobalt coating is more wear resistant and corrosion resistant than chromium-based coatings, thereby reducing the frequency of parts being returned for subsequent repairs.

Executive Order 13148 Section 502 requires USAF to reduce discharge of toxic chemicals by 40 percent by December 31, 2006. Hexavalent chromium falls within this group of toxic chemicals. With the current chromium plating process, hexavalent chromium flows to the Hill AFB industrial wastewater treatment plant (IWTP), and has the potential to be discharged from the base as a component of the wastewater sludge. The proposed action is needed to support the intent and requirements of *Executive Order 13148*.

1.3 Location of the Proposed Action

Hill AFB is located approximately twenty five miles north of downtown Salt Lake City and 7 miles south of downtown Ogden, Utah (Figure 1). Hill AFB is surrounded by several communities: Roy and Riverdale to the north; South Weber to the northeast; Layton to the south; and Clearfield, Sunset, and Clinton to the west. The base lies primarily in northern Davis County with a small portion located in southern Weber County.

The proposed thermal spray addition would be located in the southeastern portion of the base, just north of the south entrance gate (Figure 2). The thermal spray addition would be constructed on the north end of existing Building 505 (Figure 3).

1.4 Scope of the Environmental Review and Anticipated Environmental Issues

The scope of this environmental review is to analyze environmental concerns related to constructing a thermal spray addition to Building 505. During the construction process, an existing overhead power line and an existing buried water line would need to be protected and/or relocated. Current chromium plating operations generate hazardous wastewater, which in turn has the potential to contribute hexavalent chromium to the resulting sludge. Depending on coating formulations, either greatly reduced amounts of hazardous waste, or no hazardous waste is expected to be generated by operating the proposed thermal spray booths. During construction activities, solid wastes may be generated, and hazardous wastes could be generated if a spill of fuel, lubricants, or construction-related chemicals occurs.

Building 505 is not an historic structure, and has been determined ineligible for inclusion in the *National Register of Historic Places*. No species of plants or animals listed as threatened or endangered are known to occur on Hill AFB. The proposed project area consists of less than ¼ acre of previously disturbed land in an existing industrial area of Hill AFB. No surface water resources exist within the area of the proposed action. Hill AFB conducts groundwater monitoring of the shallow, unconfined aquifer within the area of the proposed action. Contamination has been detected in wells in the vicinity of the proposed thermal spray addition. Shallow soil contamination has been detected to the south of the proposed thermal spray addition.

The issues that have been identified for detailed consideration and are therefore presented in Sections 3 and 4 are: air quality (both indoor and outdoor air), solid and hazardous wastes, and physical environment (surface soils and groundwater). Environmental effects of the proposed action and the no action alternative were both considered.

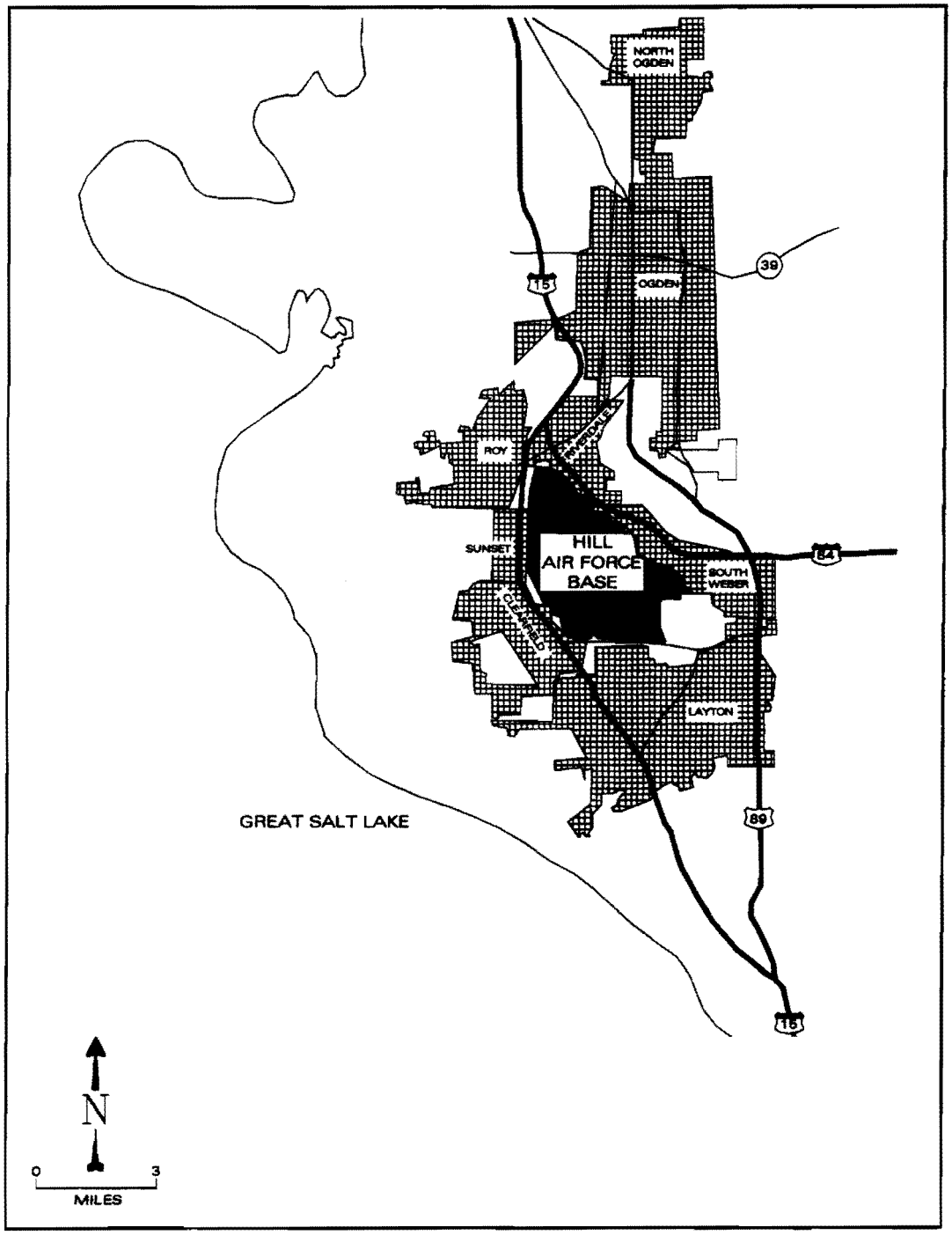

Figure 1: Hill AFB Location Map

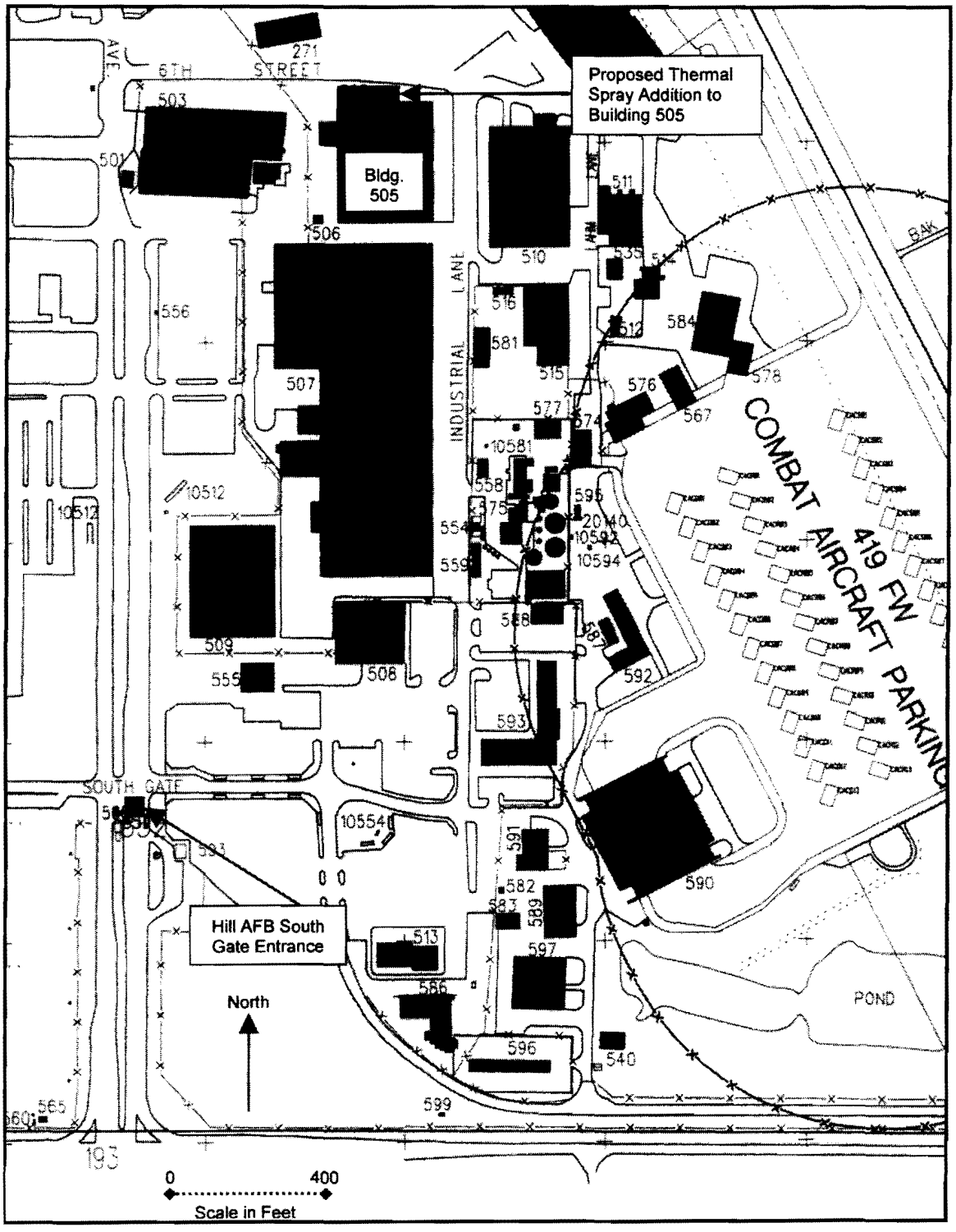

Figure 2: Location of the Proposed Thermal Spray Addition

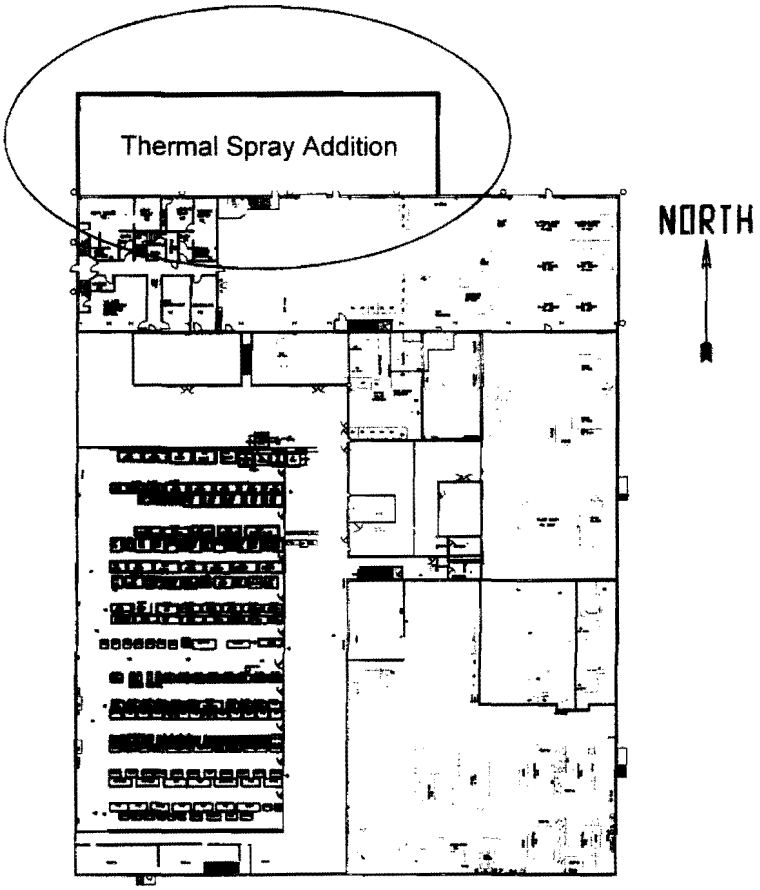

Figure 3: Proposed Addition to Building 505

(credit Linda MacCauley, facility engineer)

1.5 Applicable Regulations and Permits

Throughout the construction phase of the project, Hill AFB personnel and their contractors would follow safety guidelines of the Occupational Safety and Health Administration (OSHA) as presented in the *Code of Federal Regulations* (CFR) for trenching, Title 29 Part 1926 Subpart P, and power distribution, 29 CFR 1926 Subpart V.

The proposed action would disturb less than ¼ acre. Since the project would disturb less than 1 acre, a stormwater construction permit would not be required.

The proposed construction is not expected to contact any cultural resources (defined as archaeological, architectural, or traditional cultural properties). If suspected cultural resources are observed during any Hill AFB construction project, work in the immediate vicinity stops, and the Hill AFB cultural resources manager implements inadvertent discovery procedures in accordance with the Hill AFB *Draft Integrated Cultural Resources Management Plan.*

Hill AFB has completed remedial investigations in the vicinity of the proposed action according to the conditions of a federal facility agreement and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). Specific discussions for ongoing CERCLA activities and requirements related to the proposed action are presented in Sections 3 and 4 of this document.

The contractor would be required to have a water truck on site as needed during especially dry and windy weather for the purpose of dust suppression. Air emissions from the current chromium plating operations are regulated by the Utah Division of Air Quality and the *Hill AFB Title V Operating Permit.* New operations, such as the proposed action, must be incorporated into the Title V permit. Specific discussions for current air emissions and potential impacts related to the proposed action are presented in Sections 3 and 4 of this document. Air emissions generated by the proposed action must be addressed in accordance with Utah's State Implementation Plan, which complies with the Clean Air Act's General Conformity Rule, Section 176 (c). A conformity analysis was conducted for this proposed action as specified by "*Determining Conformity of Federal Actions to State or Federal Implementation Plans*," 40 CFR 93, revised July 1, 1998 (see Sections 3.1 and 4.1 of this document).

The proposed construction is not expected to generate any wastes that are regulated by the Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act, or similar law. Hazardous wastes at Hill AFB are routinely and properly handled in accordance with RCRA regulations, Utah hazardous waste management regulations contained in the Utah Administrative Code (UAC) Section R315-1, and the *Hill AFB Hazardous Waste Management Plan.* These regulations control hazardous waste from its origin and storage to ultimate treatment, and/or disposal. In Utah, the above regulations are enforced by the Utah Division of Solid and Hazardous Waste. The potential for generation of hazardous waste during operation of the proposed thermal spray booths is discussed in Section 4.

Hill AFB industrial wastewater discharges must comply with an industrial pretreatment permit issued by the North Davis County Sewer District (NDCSD). The pretreatment permit regulates the quality of water entering the county sewer system and ensures compliance with requirements of the Clean Water Act (CWA) and the Utah Pollutant Discharge Elimination System (UPDES).

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section describes selection criteria, the proposed action, the no action alternative, and other alternatives that were considered.

2.1 Selection Criteria

As discussed in Sections 1.1 and 1.2, the Hill AFB Maintenance Directorate (MAN) repairs hydraulic and pneudraulic equipment and landing gear for all USAF aircraft, including repairing damage and wear to exterior surfaces by the current process of aqueous chromium plating. The rate of repairs is currently increasing, and USAF is simultaneously striving to decrease the use of chromic acid (hexavalent chromium). Hill AFB proposes to accommodate USAF missions as well as the pollution prevention goals in *Executive Order 13148 Section 502,* by constructing a facility to provide additional coating capacity using an improved surface coating technology (a thermal spray coating process).

Due to these considerations, the following selection criteria were established. The future facility and repair technology for surfaces of hydraulic and pneudraulic equipment and landing gear at Hill AFB should:

- be adjacent to the related activities of: parts storage; preparation of parts for coating; and final grinding after the coating process is completed;
- have sufficient space to house all of the required equipment;
- provide sufficient capacity to meet USAF mission objectives;
- be a technology that is approved by USAF technical orders;
- reduce rework due to inconsistencies in the coating process;
- reduce or eliminate the use of chromic acid in compliance with *Executive Order 13148 Section 502*; and
- be protective of facilities, human health, and the environment.

2.2 Proposed Action: Construct the Thermal Spray Addition

The proposed action includes all work necessary to construct a thermal spray addition to Building 505 at Hill AFB. The proposed addition would house a quantity of 8 spray booths, in which a tungsten carbide and cobalt based coating would be applied to landing gear and pneudraulic components using a thermal spray coating process. Thermal spray coating processes currently approved by USAF are the high velocity oxygen fuel (HVOF); high velocity air fuel (HVAF); electric arc wire; combustion wire; and plasma spray processes.

The proposed structure would consist of approximately 7,000 square feet situated on the north side of Building 505 (Figure 3). The type of construction would be concrete panels and concrete floor to match the existing structure. Cargo doors would be located on the

west and east sides of the addition. A monorail overhead crane system would be attached to the structure, and a dust collection system would be provided on the roof. Utilities and the thermal spray coating systems would be installed. During the construction process, an existing overhead power line and an existing buried water line would be protected and/or relocated.

The deepest point of excavation would be 10-15 feet below ground surface (bgs). While open, the sides of any excavations would be sloped at 1.5 horizontal to 1.0 vertical or other such angle as approved by the design and geotechnical engineering contractors. The construction contractor would restore nearby surfaces to their original condition.

The environmental impacts of the proposed action are summarized in Section 4.5 of this document, and are discussed at greater length throughout Section 4 of this document.

2.3 No Action Alternative: Do Not Construct the Facilities

The no action alternative does not meet the selection criteria to supply sufficient capacity to meet USAF mission objectives; to reduce rework due to inconsistencies in the coating process; or to reduce or eliminate the use of chromic acid. However, the framework of an environmental assessment requires that the no action alternative must be considered even if it does not meet all of the selection criteria.

Under the no action alternative, it is predicted that Hill AFB may be unable to provide sufficient capacity for repair of landing gear and pneudraulic components of USAF aircraft. It is therefore possible that aircraft would be grounded, and mission requirements for sorties would not be met.

The environmental impacts of the no action alternative are summarized in Section 4.5 of this document, and are discussed at greater length throughout Section 4 of this document.

2.4 Identification Of Alternatives Eliminated From Further Consideration

Hill AFB project managers eliminated other potential locations for housing the proposed coating process for the following reasons. The parts are located in Building 505; the parts are prepared to be coated using the facilities in Building 505; and final grinding after coating is performed in Building 505. No other existing location is known that could support the proposed activity without new construction, and other locations (either on base or off base) would either cause mission delays due to transporting parts before and after the coating process, or require the construction of a much larger facility to house the storage, preparation, coating, and grinding activities.

Hill AFB engineers identified 5 developing technologies for repair of landing gear and pneudraulic components that have the potential to achieve mission requirements. The 5 potential technologies are:

- electroless nickel phosphorus;
- electroless nickel boron;

- PVD magnatron;
- cold spray; and
- nanocomposite plating.

None of these technologies has been approved by USAF, nor are they expected to be approved within the next few years.

3.0 EXISTING ENVIRONMENT

3.1 Air Quality

Hill AFB is located in Davis and Weber Counties, Utah. Neither county is in complete attainment status with federal clean air standards (Figure 4). Nonattainment areas fail to meet national ambient air quality standards (NAAQS) for one or more of the criteria pollutants: oxides of nitrogen (NO_x), sulfur dioxide (SO_2), ozone (O_3), particulates less than 10 microns in diameter (PM-10), carbon monoxide (CO), and lead. Davis County was upgraded from an ozone non-attainment area to a maintenance area, effective 1997. Current status according to the Utah Division of Air Quality (DAQ 2003) for the City of Ogden in Weber County (approximately 7 miles north of the proposed action) is designation as a non-attainment area for PM-10 and a maintenance area for CO.

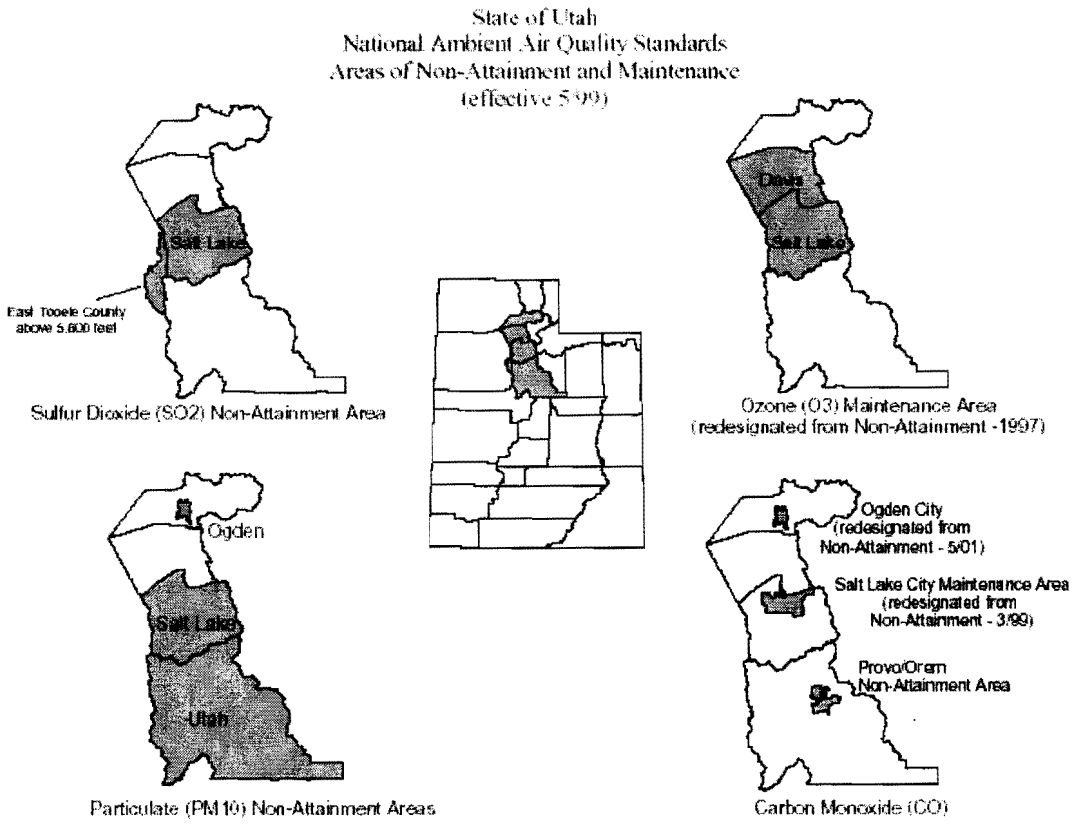

Figure 4: State of Utah National Ambient Air Quality Standards, Areas of Non-Attainment and Maintenance (Effective 5/99)

The current air quality trend at Hill AFB is one of controlling emissions as Hill AFB managers implement programs to eliminate ozone-depleting substances, limit use of volatile organic compounds (VOCs), install VOC emission control equipment for painting operations, switch to lower vapor pressure solvents and aircraft fuel, convert internal combustion engines from gasoline and diesel to natural gas, and improve the capture of particulates during painting and abrasive blasting operations (in compliance with the base's Title V air quality permit).

The aqueous chromium plating solutions contain chromic acid (hexavalent chromium). Potential worker exposures exist due to mists near the plating tanks (personal communication, Mr. Bruce Sartwell). However, indoor air quality in Building 505 is currently in compliance with OSHA and USAF regulations (personal communication, Ms. Cary Fisher).

For calendar year 2002, Hill AFB did not segregate airborne chromium emissions by location. However, the base wide total reported for 2002 was a negligible weight of 1.17 pounds (Bird 2003).

3.2 Solid and Hazardous Wastes

In general, hazardous wastes include substances that, because of their concentration, physical, chemical, or other characteristics, may present substantial danger to public health or welfare or to the environment when released into the environment or otherwise improperly managed. Hazardous wastes generated at Hill AFB are managed as specified in the *Hill AFB Hazardous Waste Management Plan* with oversight by personnel from the Environmental Management Directorate and the Defense Reutilization and Marketing Office. Hazardous wastes at Hill AFB are properly stored during characterization, and then manifested and transported off site for treatment and/or disposal.

The IWTP generates approximately 250 tons per year of hazardous wastewater sludge. The hazardous classification is due largely to the potential presence of hexavalent chromium and results of toxicity characteristic leaching procedure (TCLP) analyses for total chromium in the sludge.

Hill AFB hazardous waste management records indicate that under current practices, approximately 22,000 pounds per year of aqueous chromium (mostly in the hexavalent form) enter the IWTP from the plating operations in Building 505. IWTP has a process in place to treat hexavalent chromium, converting it to trivalent chromium. However, subsequent oxidizing environments, such as natural gas fired sludge dryers that were used in the past, can convert some of the trivalent chromium back to hexavalent chromium. There is also a potential for failure of the hexavalent chromium treatment process, which would cause hexavalent chromium to be present in IWTP sludge.

Recent results of TCLP analyses for total chromium in IWTP sludge are in the range of 4 part per million (ppm) to 12 ppm, compared to a hazardous threshold of 5 ppm.

3.3 Physical Environment

3.3.1 Surface Soils

The surface soils in the vicinity of proposed excavations are flat and covered with pavement. There is no known shallow soil contamination on the north side of Building 505 (personal communication, Ms. Shannon Smith).

3.3.2 Groundwater

Trichloroethene contamination has been detected in wells in the immediate vicinity of the proposed action (Hill 2001). However, in this area of Hill AFB, depth to groundwater is approximately 150 feet bgs (personal communication, Ms. Shannon Smith).

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Air Quality

4.1.1 Impacts of the Proposed Action

Emissions of PM-10 would be produced as soil is disturbed during proposed construction activities. The US Environmental Protection Agency (EPA) has estimated that fugitive dust emissions from construction activities produce 0.11 tons of PM-10 per acre per month (EPA 1996). The proposed action would involve approximately 1 week of excavation and backfill activities for approximately 0.25 acres being disturbed during construction of buried power lines, foundations, and pavement. Fugitive dust emissions of 0.007 tons of PM-10 were therefore calculated for the proposed action. To mitigate emissions of fugitive dust, the construction contractor would be required to have a water truck on site as needed during dry and windy weather for the purpose of dust suppression and reducing the emissions of PM-10.

The internal combustion engines of heavy equipment would also generate emissions of PM-10, VOCs, NO_x, and CO. Fugitive emissions from construction activities should be mitigated according to *Utah Administrative Code, Rule R307-205, Emission Standards: Fugitive Emissions and Fugitive Dust*. Good housekeeping practices should be used to maintain construction opacity at less than 20 percent. Haul roads should be kept wet, and any soil that is deposited on nearby paved roads by construction vehicles should be removed from the roads and returned to the site or appropriate disposal area.

Assumptions and estimated emissions for the construction period are listed in Table 1.

Table 1: Calculated Heavy Equipment Emissions

Data Assumptions

Equipment Type	Diesel Emission Factor (lbs/hr)					
	VOC (HC)	CO	NOx	PM10	HAPs	SOx
Asphalt Paver	0.28	1.24	2.96	0.24	0.05	0.25
Concrete Truck	0.80	3.55	8.50	0.69	0.15	0.72
Crane	2.14	6.96	17.08	2.39	0.33	1.54
Dump Truck	0.63	2.04	6.98	0.58	0.16	0.65
Flat Bed Truck	0.48	1.54	5.29	0.44	0.12	0.49
Fork Lift	0.42	2.47	1.98	0.40	0.05	0.23
Front End Loader	0.87	4.12	6.12	0.64	0.06	0.52
Motored Grader	0.83	2.01	5.08	0.53	0.06	0.46
Scraper	0.33	2.31	4.03	0.58	0.13	0.42
Track Hoe	0.91	6.65	13.75	1.84	0.26	1.19
Vibratory Compactor	0.38	1.44	4.31	0.36	0.09	0.46
Water Truck	1.10	3.58	12.28	1.02	0.28	1.14
Wheeled Dozer	0.46	1.48	5.08	0.35	0.08	0.49

Note: VOCs = Hydrocarbons and HAPs = Aldehydes
Source: Industry Horsepower Ratings and EPA 460/3-91-02

Construct Thermal Spray Addition to Building 505

EQUIPMENT TYPE	HOURS OF OPERATION	Diesel Emissions (lbs)					
		VOC	CO	NOx	PM10	HAPs	SOx
Asphalt Paver	10	2.8	12.4	29.6	2.4	0.5	2.5
Concrete Truck	24	19.2	85.2	204.0	16.6	3.6	17.3
Crane	16	34.2	111.4	273.3	38.2	5.3	24.6
Dump Truck	36	22.7	73.4	251.3	20.9	5.8	23.4
Flat Bed Truck	8	3.8	12.3	42.3	3.5	1.0	3.9
Fork Lift	4	1.7	9.9	7.9	1.6	0.2	0.9
Front End Loader	24	20.9	98.9	146.9	15.4	1.4	12.5
Motored Grader	4	3.3	8.0	20.3	2.1	0.2	1.8
Scraper	2	0.7	4.6	8.1	1.2	0.3	0.8
Track Hoe	24	21.8	159.6	330.0	44.2	6.2	28.6
Vibratory Compactor	16	6.1	23.0	69.0	5.8	1.4	7.4
Water Truck	20	22.0	71.6	245.6	20.4	5.6	22.8
Wheeled Dozer	8	3.7	11.8	40.6	2.8	0.6	3.9
TOTAL ESTIMATED EMISSIONS (lbs)		**162.9**	**682.2**	**1668.9**	**175.0**	**32.2**	**150.5**
TOTAL ESTIMATED EMISSIONS (tons)		**0.08**	**0.34**	**0.83**	**0.09**	**0.02**	**0.08**

Source of Hours: Discussions With 2Lt Jim Keller, Hill AFB CE Project Manager

No personnel would be present inside the thermal spray coating booths while the booths operate. Employees view the process from an external observation point. There would be no indoor air impacts resulting from ongoing operations of the proposed action. If the thermal spray coating process is implemented, it is estimated that 2 of the existing 5 aqueous chromium plating lines will no longer be required. Indoor air exposures to some workers could be reduced by removing 2 of the aqueous chromium plating lines from service (see Section 4.1.2).

As stated in Section 2.2, 8 spray booths are proposed, in which a tungsten carbide and cobalt based coating would be applied to landing gear and pneudraulic components using a thermal spray coating process. The material most likely to be used for Air Force applications is 83% tungsten carbide and 17% cobalt. The Navy as a customer may at times request a formulation containing 86% tungsten carbide, 10% cobalt, and 4% chromium (not hexavalent). Both cobalt and chromium are listed by EPA as hazardous air pollutants (HAPs).

The thermal spray coating booths would exhaust air through high efficiency particulate air (HEPA) filters. Hill AFB environmental engineers have previously estimated airborne emissions from HEPA-filtered coating facilities very similar to the proposed thermal spray equipment. The estimated controlled particulate emission rate was 0.01 pounds per year per spray booth (Bird 2003). Using a worst case calculation for both cobalt (at 17%) and chromium (at 4%) in all 8 spray booths, the following results were calculated:

- 0.01 x 8 x 0.17 = 0.014 pounds per year cobalt; and
- 0.01 x 8 x 0.04 = 0.003 pounds per year chromium.

Related to conformity with Utah's State Implementation Plan, and therefore the Clean Air Act's General Conformity Rule and 40 CFR 93, the proposed action is expected to emit less than 500 pounds per year of a single HAP and less than 2,000 pounds per year of a combined HAPs. Therefore, it does not require a new source review. Conformity was determined to exist.

4.1.2 Impacts of the No Action Alternative

There would be no construction-related air quality impacts associated with the no action alternative.

The existing aqueous chromium plating tanks produce vapor and mist of hexavalent chromium compounds. OSHA defines permissible exposure limits (PELs) for contaminants found in plating shops. In the near future, OSHA is expected to issue new regulations lowering the PELs for chromium (as chromates) from the current PEL of 100 micrograms per cubic meter ($\mu g/m^3$) to an 8-hr time-weighted average between 0.5 and 5.0 $\mu g/m^3$, with an action level at one-half the PEL.

The ventilation control measures currently recommended by industrial hygienists and required by 29 CFR 1910.94 may not reduce employee exposure below a PEL of 0.5 micrograms per cubic meter ($\mu g/m^3$). It is therefore likely that additional respiratory protection would be required in addition to local exhaust ventilation to achieve the PEL of 0.5 $\mu g/m^3$. It is also possible that additional respiratory protection would be required even if OHSA sets the new PEL at a higher value of 5 $\mu g/m^3$.

Under the no action alternative, air emissions from Building 505 would stay the same as currently exist. For calendar year 2002, Hill AFB did not segregate airborne chromium emissions by location. However, the base wide total reported for 2002 was a negligible weight of 1.17 pounds.

4.1.3 Cumulative Impacts

Construction-related air emissions would be temporary. There are no cumulative impacts to air quality associated with operation of the proposed action. There are no cumulative air quality impacts associated with operation of the no action alternative.

4.2 Solid and Hazardous Wastes

4.2.1 Impacts of the Proposed Action

During the proposed construction activities, no solid wastes would be generated except for minor amounts of construction debris that would be treated as uncontaminated trash. It is possible that equipment failure or a spill of fuel, lubricants, or construction-related chemicals could generate solid or hazardous wastes. In such a case, or if excavated soils exhibit suspicious odors or appearance, the following procedures would apply on Hill AFB.

Hill AFB personnel have specified procedures for handling construction-related solid and hazardous wastes in their engineering construction specifications. The procedures are stated in *Section 01000, General Requirements, Part 1, General, Section 1.24, Environmental Protection.* All solid non-hazardous waste is collected and disposed on a daily basis. Samples from suspect wastes are analyzed for hazardous vs. non-hazardous determination. The suspect waste is safely stored while analytical results are pending. Hazardous wastes are stored at sites operated in accordance with the requirements of 40 CFR 265. The regulations require the generator to characterize hazardous wastes with analyses or process knowledge. Hazardous wastes are eventually labeled, transported, treated, and disposed in accordance with federal and state regulations.

The proposed thermal spray booths in Building 505 would use dust collection drums and HEPA filters. Based on current experience with similar processes in Building 511, it might take 5-10 years to fill a 55 gallon drum with dust for disposal. The dust would be tested for hazardous constituents prior to disposal, but it is believed the dust will be confirmed to be non hazardous (personal communication, Mr. Blake Peterson). The

HEPA filters would also be anticipated to be non hazardous, and on a 5-10 year changeout schedule. The report by Concurrent Technologies Corporation (CTC 2003) stated "*the material can be sold to a third party for reprocessing, with the proceeds offsetting any internal handling costs.*" A representative for the manufacturer of the coating powders (Praxair Surface Technologies) stated their waste powder has been tested, and passed the TCLP, to be classified as non hazardous (personal communication, Mr. John Barry).

The proposed action would not generate any wastewater. If the proposed action is implemented, and 2 of the existing 5 aqueous chromium plating lines are removed from service, hexavalent chromium loading to the IWTP would be reduced by approximately 8,800 pounds per year. This would in turn reduce the likelihood that hexavalent chromium would appear in IWTP sludge. TCLP results for total chromium in IWTP sludge would be reduced, supporting the goal of eventually reducing chromium concentrations below the hazardous threshold of 5 ppm.

Due to the remaining hexavalent chromium loading to the IWTP, the proposed action would not have a significant effect on operations at the IWTP or its ability to remain in compliance with the conditions of its industrial pretreatment permit.

4.2.2 Impacts of the No Action Alternative

With respect to solid and hazardous wastes, current conditions would continue under the no action alternative (see Section 3.2).

4.2.3 Cumulative Impacts

Proper handling of solid and hazardous wastes eliminates releases of contaminants to the environment. There are no cumulative solid or hazardous waste impacts associated with the proposed action. There are no cumulative solid or hazardous waste impacts associated with the no action alternative.

4.3 Physical Environment

4.3.1 Surface Soils

4.3.1.1 Impacts of the Proposed Action

The surface soils in the vicinity of the proposed excavation are flat and covered with pavement. The area disturbed by excavation would be backfilled and pavement would be replaced. The proposed action would not impact surface soils.

4.3.1.2 Impacts of the No Action Alternative

With respect to surface soils, the no action alternative has no impacts.

4.3.1.3 Cumulative Impacts

There are no cumulative impacts to surface soils associated with the proposed action or with the no action alternative.

4.3.2 Groundwater

4.3.2.1 Impacts of the Proposed Action

Contaminated groundwater exists beneath the proposed action, at a depth of approximately 150 feet bgs (personal communication, Ms. Shannon Smith). The anticipated depth of excavation would not exceed 15 feet bgs, and no contact with groundwater would exist.

4.3.2.2 Impacts of the No Action Alternative

With respect to groundwater, the no action alternative has no impacts.

4.3.2.3 Cumulative Impacts

There are no cumulative impacts to groundwater resources associated with the proposed action or the no action alternative.

4.4 Summary of Impacts

The proposed action and the no action alternative were both considered in detail. Following the construction phase, backfill and paving operations would prevent erosion of the site. The proposed action could be implemented with minor air emissions of both short term and long term duration. The proposed action would be expected to reduce indoor air exposures to workers who are responsible for overhaul and repair of landing gear and pneudraulic components in accordance with USAF technical order specifications. The small amounts of solid residue generated by the proposed action would not be expected to be classified as hazardous waste. The proposed action would reduce hexavalent chromium and total chromium loading to the IWTP. No long-term environmental impacts are expected from either the proposed action or the no action alternative.

Table 2: Summary Comparison of Alternatives

Issue	Proposed Action **Construct the Thermal Spray Addition to Building 505**	No Action **Do Not Construct the Addition**
Air Quality	Temporary construction-related emissions. Worker exposures may be reduced. Emissions of less than 0.017 pounds per year of HAPs would be expected.	Current conditions would continue.
Solid and Hazardous Wastes	Would not be generated as solids. Chromium and hexavalent chromium loading to the IWTP would be reduced.	Current conditions would continue.
Surface Soils	Construction-related erosion control measures may be required.	No impact.
Groundwater	No impact (contaminated groundwater is below the maximum depth of excavation).	No impact.

5.0 LIST OF PREPARERS

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Environmental Management, OO-ALC/EMR
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Kay Winn, NEPA Manager

6.0 LIST OF PERSONS AND AGENCIES CONSULTED

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7.0 REFERENCES

Bird 2003: e-mail from Dwight Bird, P.E., mechanical/environmental engineer (contractor).

CFR: *Code of Federal Regulations*, US Government Printing Office, Office of the Federal Register (various sections and dates).

CTC 2003: *Draft Cost Benefit Analysis of Hard Chromium Vs. High-Velocity Oxygen-Fuel Thermal Spray Coatings for Landing Gears and Actuators*, Concurrent Technologies Corporation, 2003.

DAQ 2003: *State of Utah National Ambient Air Quality Standards, Areas of Non-Attainment and Maintenance (Effective May, 1999)*, Utah Division of Air Quality Website, July, 2003.

EPA 1991: *Nonroad Engine and Vehicle Emission Study - Report,* Table 2-07a, US Environmental Protection Agency, 1991.

EPA 1996: *National Air Pollutant Emission Trends, Procedures Document for 1900-1996*, US Environmental Protection Agency, Page 4-285, 1996.

Hill AFB: *Construction Specifications, Section 01000, General Requirements, Part 1, General, Section 1.24, Environmental Protection*, Hill AFB, UT, current version.

Hill AFB 2001: *Hill AFB 2001 Environmental Restoration Management Action Plan (Web Pages),* http://www.em.hill.af.mil/restoration/Map02/hill.html and http://www.em.hill.af.mil/restoration/Map02/ou8.html.

FLAME SPRAY

State of Utah
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY

Michael O. Leavitt
Governor
Dianne R. Nielson, Ph.D.
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DAQE-AN0121134-02

May 20, 2002

Bob James
Director, Environmental Management
OO-ALC/EM
7276 Wardleigh Rd.
Hill Air Force Base, Utah 84056-5990

Dear Mr. James:

Re: Approval Order: Modification of Approval Order DAQE-360-00, Update Language and Add Equipment for Metallurgical Process
Davis County, CDS A, Maintenance Ozone, PSD Title V Major
Project Code: N0121-134

The attached document is the Approval Order for the above-referenced project.

Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any technical questions you may have on this project to Mr. Tad Anderson. He may be reached at (801) 536-4456.

Sincerely,

Richard W. Sprott, Executive Secretary
Utah Air Quality Board

RWS:TDA:dn

cc: Davis County Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

APPROVAL ORDER: MODIFICATION OF APPROVAL ORDER DAQE-360-00, TO UPDATE LANGUAGE AND ADD METALLURGICAL PROCESS

Prepared By: Tad Anderson, Engineer
(801) 536-4456
Email: tanderso@deq.state.ut.us

APPROVAL ORDER NUMBER

DAQE-AN0121134-02

Date: May 20, 2002

Hill Air Force Base

Source Contact
Glenn Palmer
(801) 775-6918

Richard W. Sprott
Executive Secretary
Utah Air Quality Board

Abstract

Hill Air Force Base (Hill) has requested to modify the metallurgical Approval Order DAQE-360-00, to add a new plasma arc flame spray booth, an oxygen fuel flame spray booth, and update conditions for Title V purpose. The existing permit contains one impingement scrubber, two flame spray booths, and one oxygen flame spray booth. The estimated emissions increase for the plasma arc flame spray booth and oxygen fuel flame spray booth for Building 511 will change as follows: 78 pounds of particulate (particulate is a combination of nickel and chrome) per year. The estimated emissions for this permit will be as follows: 0.039 tons per year of PM_{10}, 0.00516 ton per year of nickel particulate and 0.0335 tons per year of chrome particulate (Hazardous Air Pollutant).

The processes associated with this Approval Order modification are not subject to any current New Source Performance Standards (NSPS) and are not covered by the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Aerospace Manufacturing and Rework Facilities (40 CFR 63 Subpart GG). Hill is classified as a major source for volatile organic compounds (VOC) and a PSD source for NO_X and CO as well as a SIP-listed source for Ozone. Hill is subject to the Title V Operating Permit Program (OPP). Hill is located in Davis County, which is a maintenance area for Ozone, but is an attainment area for other criteria pollutants. Modeling to determine the impact from the operations in Building 511 was required since the emissions increase is 78 pounds per year of HAPs. Modeling showed that the concentration of chromium emissions was below the toxic screening level. However, since new equipment is being added and there is an emission increase, a 30-day public comment period was required.

This approval order is issued to and applies to the following:

Name of Permittee:

Hill Air Force Base
OO-ALC/EM
7276 Wardleigh Road
Hill Air Force Base, Utah 84056-5137

Permitted Location:

Main Base (building 511)
OO-ALC/EM
7276 Wardleigh Road
Hill Air Force Base, Utah 84056-5137

UTM Coordinates: 4,553,000 meters Northing, 419,000 meters Easting
Zone 12, NAD27

SIC Code: 9711

Section II: SPECIAL PROVISIONS

II.A The approved installations for the metallurgical operations shall consist of the following equipment:

II.A.1 Impingement Scrubber (AQUIS 3677)

IIA.2 Two (2) Flame Spray Booths (AQUIS 3395, 3396)
Control: Impingement Scrubber

II.A.3 Two (2) Oxygen Fuel Flame Spray Booths (AQUIS 34396)
Control: HEPA filter

II.A.4 Plasma Arc Flame Spray Booth (AQUIS ?)
Control: Water wall filtration
air flow: 200 acfm**

** for replacement in kind purpose

Any future changes or modifications to the equipment and processes approved by this AO that could affect the emissions covered by this AO must be approved in accordance with R307-401-1, UAC.

II.B. Requirements and Limitations

II.B.1 PM_{10} Emissions

The Impingement Scrubber is located in building 511 with two flame spray booths. Visible emissions from the scrubber and the flame spray booths (including the Oxygen and Plasma Arc flame spray booths) shall be no greater than 10 percent opacity.

II.B.1.a Monitoring: A visual opacity survey of each affected emissions unit shall be performed on a monthly basis by an individual trained on the observation procedures of EPA Method 9. If visible emissions are observed from an emission unit, an opacity determination of that emission unit shall be performed within 24 hours of the initial survey.

II.B.1.b Recordkeeping: A log of the visual opacity survey(s) shall be maintained in accordance with II.B.1 of this permit. If an opacity determination is indicated, a notation of the determine will be made in the log. All data required by the corresponding opacity determination procedure shall also be maintained in accordance with II.B.1 of this permit.

II.B.1.c Reporting: There are no reporting requirements for this condition

Section I: GENERAL PROVISIONS

Section I: GENERAL PROVISIONS

IA. Definitions of terms, abbreviations, and references used in this AO conform to those used in the UACR, Utah Administrative Codes (UAC), and Series 40 of the Code of Federal Regulations (40 CFR). These definitions take precedence unless specifically defined otherwise herein.

IB. All records referred to in this AO which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or a representative upon request.

IC. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this Approval Order including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded, and the records shall be maintained for a period of two years. Maintenance records shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-year period prior to the date of the request.

ID The owner/operator shall comply with R307-158, UAC. This rule addresses emission inventory reporting requirements.

IE. The owner/operator shall comply with R307-107, UAC. Unavoidable breakdown reporting requirements.

IF. This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including the UACR.

IG. This AO shall replace the following AO's:

1. Approval Order Modification to DAQE-054-98, dated January 26, 1998, to add a Flame Spray Booth, DAQE-360-00 dated June 22, 2000.

Annual emissions for flame spray booths at Hill Air Force Base are currently calculated at the following values:

Pollutant	Ton/yr
PM_{10}	0.039 - same
HAP'S	0.03916 - 78 lbs/yr

The Division of Air Quality is authorized to charge a fee for reimbursement of the actual costs incurred in the issuance of an AO. An invoice will follow upon issuance of the final Approval Order.

Approved By:

Richard W. Sprott, Executive Secretary
Utah Air Quality Board

Company Hill Air Force Base

Site: Main Base

Submitted for Calendar Year: **2002**

State of Utah Emission Inventory

Department of Environmental Quality
Division of Air Quality

Form F6b : Evaporative Emissions-Solvents or Coatings

Plant or Operation: **Thermal Metal Spray**

Pt.Source ID	SCC	Description of Process Generating Emissions	Associated Stack ID	NSPS (Y/N)	Name of Solvent or Coating	Thruput lbs/yr	Density (lb/gal)	CAS	Emissions* Pollutant (tons/yr)	Estimate Code	Emission Factor	Units	If Controlled Company's ID or Name for Control	Control Code (see list)	% Collection Efficiency	Comment
3355	30904500	TMS - LANDING GEAR PARTS	N/A plasma spray cell booth	N	various	380.2	N/A	PM10	0.001	02	0.00526	LB/LB	NONE	000	0%	See Note on page footer
3356	30904500	TMS - BOOTH IN MAIN ROOM	N/A spray cell plasma, wire, thermo	N	various	282.9	N/A	PM10	0.016	02	0.11311	LB/LB	NONE	000	0%	See Note on page footer
3380	30904500	TMS - AIRCRAFT PARTS	N/A arc wire combustion wire	N	various	158.2	N/A	PM10	0.011	02	0.13906	LB/LB	NONE	000	0%	See Note on page footer
3382	30904500	TMS - LANDING GEAR PARTS	N/A arc wire combustion wire	N	various	109.2	N/A	PM10	0.001	02	0.01832	LB/LB	NONE	000	0%	See Note on page footer
3387	30904500	SURF - THERMAL SPRAY COATING	N/A spray lathe arc wire. plasma	N	various	1376.0	N/A	PM10	0.006	02	0.00872	LB/LB	NONE	000	0%	See Note on page footer
3391	30904500	TMS-ARC WIRE LATHE	N/A spray lathe arc wire	N	various	91.6	N/A	PM10	0.022	02	0.48035	LB/LB	NONE	000	0%	See Note on page footer
3394	30904500	TMS - LANDING GEAR PARTS	N/A spray arc wire	N	various	158.2	N/A	PM10	0.011	02	0.13906	LB/LB	NONE	000	0%	See Note on page footer
3395	30904500	TMS - TO CONTROL #3412	N/A spray arc wire	N	various	183.2	N/A	PM10	0.013	02	0.14192	LB/LB	NONE	000	0%	See Note on page footer
3396	30904500	TMS - LANDING GEAR PARTS	N/A spray arc wire	N	various	41.6	N/A	PM10	0.003	02	0.14423	LB/LB	NONE	000	0%	See Note on page footer
3406	30904500	TMS - LANDING GEAR PARTS	N/A spray arc wire	N	METCO 8235 PRAXAIR O1S ALUM. 14 GAGE	44	N/A	PM10	0.003	02	0.13636	LB/LB	NONE	000	0%	See Note on page footer
3686	40200101	SURF - THERMAL SPRAY COATING	N/A spray lathe arc wire	N	various	1477.6	N/A	PM10	0.013	02	0.0176	LB/LB	NONE	000	0%	See Note on page footer
34396	40200101	TMS - COAT METAL PARTS	N/A HVDF	N	PRAXAIR 1343VM / VF ARC WELDING POWDER	790	N/A	PM10	0.056	02	0.14177	LB/LB	NONE	000	0%	See Note on page footer

NOTE: Emission Factor Calculated Using --([Total Emissions(tons/yr) * 2000(lbs/ton)] / Total Thruput(lbs/yr))*(1 - Control Efficiency/100)

****Stack ID's utilized are from the EQUIPMENT_STACK.ID field of APIMS. For AQUIS ID's, cross-reference the appropriate stack ID given here with the form F4 and see the comments field.**

Company: Hill Air Force Base
Site: Main Base
Submitted for Calendar Year: 2002

State of Utah Emission Inventory
Department of Environmental Quality
Division of Air Quality

Form F6b : Evaporative Emissions-Solvents or Coatings

Plant or Operation: **Thermal Metal Spray**

Pt.Source ID	SCC	Description of Process Generating Emissions	Associated Stack ID	NSPS (Y/N)	Name of Solvent or Coating	Thruput lbs/yr	Density (lb/gal)	CAS	Emissions* Pollutant (tons/yr)	Estimate Code	Emission Factor	Units	If Controlled: Company's ID or Name for Control	Control Code (see list)	% Collection Efficiency	Comment
36920	30904500	TMS - PLASMA ARC FLAME BOOTH	N/A spray cell plasma booth	N	various	101.7	N/A	PM10	0.007	02	0.13766	LB/LB	NONE	000	0%	See Note on page footer
36948	30904500	TMS - OXY FLAME SPRAY	N/A HVOF	N	PRAXAIR 1343VM / VF ARC WELDING POWDER	790	N/A	PM10	0.056	02	0.14177	LB/LB	NONE	000	0%	See Note on page footer

total PM_{10} emissions from TMS (2002)
0.22 tons PM_{10}/year

NOTE: Emission Factor Calculated Using --([Total Emissions(tons/yr) * 2000(lbs/ton)] / Total Thruput(lbs/yr))*(1 - Control Efficiency/100)

****Stack ID's utilized are from the EQUIPMENT_STACK.ID field of APIMS. For AQUIS ID's, cross-reference the appropriate stack ID given here with the form F4 and see the comments field.**

Peterson Nicolas Contr OO-ALC/EM

From: Allen James Contr OO-ALC/EMC
Sent: Wednesday, October 22, 2003 1:48 PM
To: Peterson Nicolas Contr OO-ALC/EM
Cc: Swiger Mark Contr OO-ALC/EMC; Hansell David Contr OO-ALC/EM
Subject: RE: Thermal Spray shop

Nic, I am somewhat familiar with what they do, I can WAG some stuff for ya if you like. Call if you're interested...

-----Original Message-----
From: Allen James Contr OO-ALC/EMC
Sent: Wednesday, October 22, 2003 12:04 PM
To: Peterson Nicolas Contr OO-ALC/EM; Morrow Angela Contr OO-ALC/EMC
Cc: Swiger Mark Contr OO-ALC/EMC; Hansell David Contr OO-ALC/EM
Subject: RE: Thermal Spray shop

I believe Mark will be in touch with you. He has some background info which may resolve some of your questions.
Thanks Nic.
Jim

-----Original Message-----
From: Peterson Nicolas Contr OO-ALC/EM
Sent: Wednesday, October 22, 2003 1:12 PM
To: Allen James Contr OO-ALC/EMC
Cc: Swiger Mark Contr OO-ALC/EMC; Hansell David Contr OO-ALC/EM
Subject: RE: Thermal Spray shop

Jimbo is the MAN!
Looks like the last inspections here were in August and September (from APIMS), so you're probably not due to inspect again for at least a few months from now, right? However, I do need this information as soon as I can get it (and I would still like to visit the shop when it becomes possible). I am also looking for answers to the same types of questions for the new proposed Thermal Spray shop that will be an addition to building 505 (I have received an Environmental Assessment on this), but i would guess that the operators/UEC who you would call would not know much about this new TMS shop. Maybe if you gave me the contact/number, I could make the call? Who is the UEC down there anyway? If its more PC for you to call then I, well then thats just fine too.

Thanx Jimbo,

NIC

-----Original Message-----
From: Allen James Contr OO-ALC/EMC
Sent: Wednesday, October 22, 2003 12:04 PM
To: Peterson Nicolas Contr OO-ALC/EM; Morrow Angela Contr OO-ALC/EMC
Cc: Swiger Mark Contr OO-ALC/EMC; Hansell David Contr OO-ALC/EM
Subject: RE: Thermal Spray shop

Sorry Nic, that would be me as the inspector for MAN, Angela took over MAB.
As soon as I schedule an inspection for 511, I'll invite you along.
If you need these answers right away, I'll make a phone call.
Thanks,
Jim

-----Original Message-----
From: Peterson Nicolas Contr OO-ALC/EM
Sent: Wednesday, October 22, 2003 11:11 AM
To: Allen James Contr OO-ALC/EMC; Morrow Angela Contr OO-ALC/EMC
Cc: Swiger Mark Contr OO-ALC/EMC; Hansell David Contr OO-ALC/EM
Subject: Thermal Spray shop

Hi Yall,

I was wondering if the MAN inspector (Angela, right?) was planning on visiting the Thermal Spray shop (511) anytime soon. I would like to get a better feel for the operation down there and was hoping I could tag along on the inspection.

Some of my questions are things like: Are they just filling in cracks/burrs/nicks in the metal parts or are they coating the whole part, are they finishing/grinding/milling the part after spraying, double check control equipment, etc.

If any of you know answers to these questions, that would help, but I would still enjoy a visit.
Inspection planned anytime soon?

Thanx-a-lot,

Nicolas A Peterson
Environmental Engineer
EM*Assist*
00--ALC/EMC
office: 586-2494
cell: 430-0310
nicolas.peterson@hill.af.mil
(npeterson@emassist.com)

Peterson Nicolas Contr OO-ALC/EM

Subject: Thermal Spray Shop - Bldg 505 addition
Priority: High

Status: Not Started
Percent Complete: 0%

Total Work: 0 hours
Actual Work: 0 hours

Owner: Peterson Nicolas Contr OO-ALC/EM

Contacts: Nic Peterson
Categories: Permit Modifications

Description:
Proposed Plan includes building a Thermal Spray shop on the North end of bldg 505. Would include 8 spray booths equipped with HEPA filters. Will be spraying tungsten carbide (83%) cobalt (17%) [maybe some tungsten carbide (86%) cobalt (10%) chromium (4% not hexavalent) for Navy]. May use HVOF (high velocity oxygen fuel), HVAF (high velocity air fuel), electric arc wire, combustion wire, and/or plasma spray technologies. See Environmental Assessment for more information and emission estimates from construction and operation.
High priority, will require permit modification (shall we use/add flexibility provisions?)

Notes:
*9/18/2003 - Environmental Assessment submitted.
10/14/2003 - sent Email to Teresa for question on AeroNESHAP applicability
Email: see attached page

Peterson Nicolas Contr OO-ALC/EM

From: Peterson Nicolas Contr OO-ALC/EM
Sent: Tuesday, October 14, 2003 1:00 PM
To: 'tcrockett@emassist.com'
Cc: Hansell David Contr OO-ALC/EM; Swiger Mark Contr OO-ALC/EMC
Subject: Flame Spray Ops

Hello,

We have recently received an Environmental Assessment on a Flame Spray Shop that is planned as an addition to bldg 505 (plating shop). This will house 8 new Metal Flame Spray Booths using technologies currently used in 511 (HVOF, HVAF, Electric Arc Wire, Combustion Wire, and/or Plasma Spray). They will be spraying Tungsten Carbide Cobalt (Cobalt is an inorganic HAP), no VOC. We plan to use our current Flexibility provisions in the Title V (7-day notification to add surface coating booth, II.B.24.b of new TVOP) for installation and operation of these new booths, no NOI. Do you see problems with this?

I am trying to determine what requirements will be necessary for these new flame spray booths. It appears that they ARE covered by the Aerospace NESHAP under primer and topcoat operations [63.741(c)(7)]. The definition of primer is:

"the first layer and any subsequent layers of identically formulated coating applied to the surface of an aerospace vehicle or component. Primers are typically **used for corrosion prevention, protection from the environment**, functional fluid resistance, and adhesion of subsequent coatings. Coatings that are defined as specialty coatings are not included under this definition."

The only language I saw that might exempt these out of the Aero-NESHAP was metal finishing operations (which is not defined). I don't believe this is a metal finishing operation, but a metal coating operation because the "sprayed" parts need to be finished (sanded/grinded down, that being the metal finishing operation) after spraying.

This operation does not meet any of the control requirement exemptions in 63.745(g)(4), so a 3-stage filter system must be used, maintained, and monitored IAW the Aero-NESHAP (the Environmental Assessment claims HEPA filters will be used).

If this is the case, then should our other (existing) flame spray operations also have the Aero-NESHAP control requirements if they are spraying inorganic HAP? It looks like all of the booths are spraying some kind of inorganic HAP be it Chromium, Nickel, Manganese, Cobalt or combinations of them. Not all of the booths have controls, 3, 4, and 5 vent directly to a stack. The rest either have HEPA, waterwash, or impingement scrubber.

Christine's work on this describes some of the flame spray booths as grandfathered. This means grandfathered from an AO, not from the NESHAP, perhaps there was some confusion there?

Am I missing something here Teresa? Please advise.

Much appreciated.

Thanx,

Nicolas A Peterson
Environmental Engineer
EM*Assist*
00--ALC/EMC
office: 586-2494
cell: 430-0310
nicolas.peterson@hill.af.mil
(npeterson@emassist.com)

Type	Control	Booths	Materials
Spray Cell Plasma	wet collector	2,7	P
Spray Cell Plasma, Wire, Thermo	wet collector	1	W P
Spray Lathe Arc Wire	No Control	3,4	W
Spray Lathe Arc Wire and Plasma	No Control	5	W
Arc Wire Spray	wet collector	8,9,11,14	W
Arc Wire Spray	Impingment	12,13	W
HVOF	HEPA	6,10	H

8/14/03 Michelle, Christine, Dave

- will use same procedure as past
- Christine look at WITTS

Hansell David Contr OO-ALC/EM

From: Velasquez Christine Contr OO-ALC/EM
Sent: Monday, August 11, 2003 3:18 PM
To: Bird Dwight Contr OO-ALC/EMC; Hansell David Contr OO-ALC/EM
Subject: RE: Flame Spray Data

FYI. Based on a site visit, June 3, 2003, this is what I know about the booths in question.

- Booth #1 is grandfathered w/wet collector. Wet collector is on a quarterly PM schedule to remove sludge (PM# 7303). Activities performed in this booth consist of spray cell plasma, wire, and thermo. 3356
- Booth #2 is grandfathered w/wet collector. Wet collector is on a quarterly PM schedule (PM# 7302). This is a spray cell 7M plasma booth only. 3355
- Booth #3, and #4 are grandfathered with no controls--vented directly to stack. Monthly PM is conducted on booth #3 (PM# 2579) and quarterly PM is conducted on booth #4 (PM#0320). Activities = spray lathe arc wire only. 3686, 3391
- Booth #5 is also grandfathered with no controls--vented directly to stack. Booth is on a quarterly PM schedule (PM# 7235). Activities = spray lathe arc wire and plasma. 3387
- Booth #6 is permitted and was installed in November 2002; however, not yet operated. Emissions are routed through a dust collector w/HEPA filters prior to venting to the atmosphere. Sits in a sound enclosed room (HVOF Cell). 3948
- Booth #7 is grandfathered and has a waterfall dust collector. Dust collector is on a quarterly PM schedule (PM# SA0113). This is a spray cell plasma booth only. 36920
- Booth #8 and #9 are grandfathered and each are routed to one wet collector. Did not document PM schedule. Activities = spray arc wire only. 3406, 3394
- Booth #10 is permitted and fully operational. Emissions are routed through a dust collector w/HEPA filters prior to venting to the atmosphere. Sits in a sound enclosed room (HVOF Cell) 34396
- Booth #11 is grandfathered w/wet collector. Wet collector is on a quarterly PM schedule (PM# 7440). Activities = arc wire and combustion wire. 3380
- Booths #12 and #13 are grandfathered; however, emissions from each booth are routed through one permitted impingement scrubber. Activities consist of spray arc wire only. 3396, 3395
- Booth #14 is grandfathered w/wet collector. Wet collector is on a quarterly PM schedule (PM# 7439). Activities = arc wire and combustion wire. 3382

-----Original Message-----
From: Bird Dwight Contr OO-ALC/EMC
Sent: Friday, August 08, 2003 2:05 PM
To: Velasquez Christine Contr OO-ALC/EM; Hansell David Contr OO-ALC/EM
Subject: RE: Flame Spray Data

I would recommend lumping all of the wire booths. They use similar processes and are similarly controlled/vented, although not through the same stack (check this, I think there is a scrubber there and I'm not sure which ones vent to it).
Booths #2 and #7 are the Plasma booths that should correspond to booths in APIMS. They should be identified in their descriptions as booth #2 or booth #7.
Booths #6 and #10 are the High Velocity Oxy Fuel booths. They are newer and should have records in APIMS. We should identify them in their descriptions as booth #6 or booth #10.

Dwight V. Bird, P.E.
Mechanical/Environmental Engineer
EM*Assist*
mailto:dwight.bird@hill.af.mil - Air Force Issues
mailto:dvbird@EMAssist.com - EM*Assist*, Inc. Issues
mailto:dvb@sisna.com - Personal
http://www.emassist.com

-----Original Message-----
From: Velasquez Christine Contr OO-ALC/EM
Sent: Friday, August 08, 2003 8:33 AM
To: Bird Dwight Contr OO-ALC/EMC; Hansell David Contr OO-ALC/EM
Subject: FW: Flame Spray Data

Dwight/David,

As a result of the AEI Lessons Learned Meeting, I recently received some consumption data for the thermal spray booths in building 511 (attached). The data collected by Carolyn Chando pertains to the first six months of the year and is only representative of HMMS data. A previous discussion with Glenn regarding the possibility of having the organization perform an inventory of stock items has been resolved--EMC will only request and report HMMS consumption data. The data collected by Carolyn has provided no correlation between the fourteen spray booths, as was provided for 2002 AEI reporting. It is my understanding that the data compiled for the 2002 AEI was prepared by Blake Peterson, who actually compiled the data for other purposes.

I spoke briefly with Michelle York about AEI reporting and whether or not EMC would like to lump the 14 spray booths together. Michelle indicated that she is hesitant to lump the booths together due to the potential release of HAPs from the booths; however, she is willing to do whatever Glenn wants done. Yesterday I met with Michelle to research actual quantities of HAP and criteria pollutants emitted from this process in 2002. The following provides a brief rundown of emissions reported for the last three years:

- HAPs were not required reporting by UDAQ in 2002; however, Michelle will provide me with actual HAP emissions based on CH calculations. Criteria pollutants reported from this process in 2002 = PM10 (0.22 tons/year).
- HAP data reported during 2001 shows very small amounts of manganese compounds (0.686 lbs/yr), nickel metal (11.826 lbs/yr), chromium metal (0.493 lbs/yr) and cobalt metal dust (0.797 lbs/yr). Criteria data reported during 2001 was zero.
- Criteria and HAP data reported for 2000 was zero (not significant).

Do you folks have any thoughts or comments on how we would like to proceed with 2003 AEI reporting?

Christine

<< File: 2003 511 Matl Usage.xls >>

-----Original Message-----
From: Chando Carolyn M Civ OO-ALC/MAPE
Sent: Wednesday, July 23, 2003 9:27 AM
To: Velasquez Christine Contr OO-ALC/EM
Subject: RE: Flame Spray Data

Christine, here is the list...

Plasma Spray Powder
FOR 2003

Item	Material Name	NSN	MSDS	Jan-Jun	Jul-Dec
	Diamalloy 1008 welding powder metallic overlay	3439014782407	191113 lb		
	PS# T1275H-10 thermal spray powder	3439PT1275H-10	191890 lb	500	
	Metco 18C metal flame spray powder	3439P18C	190828 lb		
Pa	Sulzer Metco 450NS welding powder, metallic	3439002956219	2063 lb	630	
Pb	Sulzer Metco 461NS nickel chromium-aluminum-colbalt-YTTRIA	3439P461	7315 lb	495	
Pc	Sulzer Metco 130 welding powder metallic overlay	343901051375	132191 lb	30	
Pd	Sulzer Metco 201NS-1				
Pe	Sulzer Metco 308NS nickel graphite powder	3439P308NS	188685 lb		
Pf	Sulzer Metco 42C high chromium stainless powder	3439P42C	9067 lb		
Pg	Sulzer Metco 44 flame spray powder	3439L416125F	191091 lb		
Ph	Sulzer Metco 51				
Pi	Sulzer Metco 52C Metco 63 NS	3439012319466	141065 lb		
	molybdenum powder				
Pj	Sulzer Metco 71VF-NS				
Pk	Sulzer Metco 444 flame spray powder	3439L416013F	190396 lb	30	
Pl	Sulzer Metco 442				
Pm	Sulzer Metco 445				
Pn	Sulzer Metco 447 NS self-bonding metal powder	3439P447NS	188376 lb		
		3439P886172F	6806 lb		
Po	Sulzer Metco 451				

Carbon Black	3439P12089	13729 lb	10	

ARC SPRAY WIRE

Item	Material Name	NSN	MSDS		
	TAFA BONDARC 75B welding wire (#700007)	3439L416042F	190539 lb	675	
Wa	Metco 8235 Praxair O1S Alum. 14 gage	3439P01S	11301 lb	572	
Wb	Metcoloy #2 Praxair 60T	3439004253202	109438 lb		
Wc	Praxair 75 B Metco 8400	3439PSM8400	191521 lb		
Wd	Metcololy #5 Praxair 80T	3439P22995	11296 lb	300	
We	Metco 470 Praxair Wire	3439P24877	15915 lb	840	
Wf	Metco Sprabronze AA Praxair 10T	3439P01533	14989 lb	90	
Wg	Praxair 95MXC Ultra Hard wire coating	3439P95MXC	179529 lb		
Wh	Praxair O2W Metco Tin				
Wi	Praxair O2T				
Wj	Praxair 13T Metco Spraybond				
Wk	Metco 8447 Praxair 74MXC				

Contains
O = Inorganic
HAP's

HVOF Spray Powder

Item	Material Name	NSN	MSDS		
Ha	Praxair 1343VM / VF ARC welding powder	3439P1343VM	186464 lb	240	
Hb	Praxair 1350VM / VF				
Hc	Praxair 1275H				

Bldg. 511 Thermal Spray Shop		**8-Oct-02**
(chart shows primary application of material to Spray booth, some deviation may occur, and chart should be updated periodically)		
Spray material is identified as,	H.V.O.F. Powder, Ha-z	
	Plasma Powder, Pa-z	
	Wire, Wa-z	
Spray booth	**Material Applied**	**Fuel / Compressed Gases**
	(item letter)	(Consumed)
# 1	Wa,Wb,Wc,Wk,Pa,Pc,Pd,Pe	Electricity, Hydrogen, Nitrogen, Acetylene,
		Oxygen
# 2	Pa,Pb,Pc,Pd,Pe,Pf,Pg,Ph,Pi,Pj,Pk,	Electricity, Hydrogen, Nitrogen, Argon
	Pl,Pm,Pn,Po	
# 3	Wa,Wb,Wc,Wd,We,Wf,	Electricity
# 4	Wb,Wc,Wd,We,Wj	Electricity
# 5	Wa,Wb,Wc,Wd,We,Wf,Wh,	Electricity
# 6	Ha,Hb	Kerosene, Oxygen, Nitrogen
# 7	Pa	Electricity, Hydrogen, Nitrogen
# 8	Wb,Wc	Electricity
# 9	Wa	Electricity
# 10	Ha,Hb,Hc	Kerosene, Oxygen, Nitrogen
# 11	Wa,Wb,Wc,Wd,We,Wf,Wg,	Electricity, Acetylene, Oxygen
	Wh,Wi,Wj	
# 12	Wb,Wc	Electricity
# 13	Wb,Wc	Electricity
# 14	Wa,Wb,Wc,Wd,We,Wf,Wg,	Electricity, Acetylene, Oxygen
	Wh,Wi,Wj	

Hansell David Contr OO-ALC/EM

From: Velasquez Christine Contr OO-ALC/EM
Sent: Monday, August 11, 2003 3:18 PM
To: Bird Dwight Contr OO-ALC/EMC; Hansell David Contr OO-ALC/EM
Subject: RE: Flame Spray Data

FYI. Based on a site visit, June 3, 2003, this is what I know about the booths in question.

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- Booth #6 is permitted and was installed in November 2002; however, not yet operated. Emissions are routed through a dust collector w/HEPA filters prior to venting to the atmosphere. Sits in a sound enclosed room (HVOF Cell). 3948
- Booth #7 is grandfathered and has a waterfall dust collector. Dust collector is on a quarterly PM schedule (PM# SA0113). This is a spray cell plasma booth only. 3692D
- Booth #8 and #9 are grandfathered and each are routed to one wet collector. Did not document PM schedule. Activities = spray arc wire only. 3406, 3394
- Booth #10 is permitted and fully operational. Emissions are routed through a dust collector w/HEPA filters prior to venting to the atmosphere. Sits in a sound enclosed room (HVOF Cell) 34396
- Booth #11 is grandfathered w/wet collector. Wet collector is on a quarterly PM schedule (PM# 7440). Activities = arc wire and combustion wire. 3380
- Booth #12 and #13 are grandfathered; however, emissions from each booth are routed through one permitted impingement scrubber. Activities consist of spray arc wire only. 3396, 3395
- Booth #14 is grandfathered w/wet collector. Wet collector is on a quarterly PM schedule (PM# 7439). Activities = arc wire and combustion wire. 3382

-----Original Message-----
From: Bird Dwight Contr OO-ALC/EMC
Sent: Friday, August 08, 2003 2:05 PM
To: Velasquez Christine Contr OO-ALC/EM; Hansell David Contr OO-ALC/EM
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Dwight V. Bird, P.E.
Mechanical/Environmental Engineer
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Sent: Friday, August 08, 2003 8:33 AM
To: Bird Dwight Contr OO-ALC/EMC; Hansell David Contr OO-ALC/EM
Subject: FW: Flame Spray Data

Type	Control	Booths	Materials
Spray Cell Plasma	wet collector	2,7	P
Spray Cell Plasma, Wire, Thermo	wet collector	1	W P
Spray Lathe Arc Wire	No Control	3,4	W
Spray Lathe Arc Wire and Plasma	No Control	5	W
Arc Wire Spray	wet collector	8,9,11,14	W
Arc Wire Spray	Impingment	12,13	W
HVOF	HEPA	6,10	H

divide by 10

8/14/03 Michelle, Christine, Dave

- will use same procedure as past
- christine look at WITTS

qry_14	UPID6	BLDG	OFFICE_S	PROCESS_ID	PROCESS_NAME	PROCESS_DESC	SOURC	OSI?	why?
ACT	3396	511	MANLBP	PC-1031797---3396	TMS - ARC SPRAY BOOTH	TMS UNIT #12 - ARC WIRE SPRAY BOOTH. THERMAL SPRAY COATING BOOTH FOR AIRCRAFT LANDING GEAR.	TMS	Y	GPA
ACT	3395	511	MANLBP	PC-1031798---3395	TMS - ARC WIRE SPRAY BOOTH	TMS UNIT #13 - ARC WIRE SPRAY BOOTH.	TMS	Y	GPA
ACT	3406	511	MANLBP	PC-1031799---3406	TMS - ARC WIRE SPRAY BOOTH	TMS UNIT #8 - ARC WIRE SPRAY BOOTH. PROCESS USES A WET COLLECTOR.	TMS	Y	GPA ✓
ACT	3382	511	MANLBP	PC-1031802---3382	TMS - ARC WIRE SPRAY BOOTH	TMS UNIT # 14 - ARC WIRE SPRAY BOOTH. PROCESS USES WET COLLECTOR.	TMS	Y	GPA ✓
ACT	3380	511	MANLBP	PC-1031803---3380	TMS - ARC WIRE SPRAY BOOTH	TMS UNIT #11 - ARC WIRE SPRAY BOOTH. PROCESS USES WET COLLECTOR.	TMS	Y	GPA ✓
ACT	3394	511	MANLBP	PC-1031805---3394	TMS - ARC WIRE SPRAY BOOTH	TMS UNIT #9 - ARC WIRE SPRAY BOOTH. PROCESS USES WET COLLECTOR.	TMS	Y	GPA ✓
ACT	34396	511	MANLBP	PC-10312898--34396	TMS - OXY FLAME SPRAY BOOTH	TMS UNIT #10 - HIGH VELOCITY OXY. FUEL (CELL #1) CUSTOM THERMAL SPRAY SYSTEM TO COAT METAL	TMS	Y	
ACT	36948	511	MANLW	PC-10313297--36948	TMS - OXY FLAME SPRAY BOOTH	TMS UNIT #6 - HIGH VELOCITY OXY FLAME SPRAY (HVOF CELL #2) THAT APPLIES TUNGSTEN/CARBIDE METAL	TMS	Y	
ACT	3355	511	MANLBP	PC-1031800---3355	TMS - SPRAY CELL	TMS UNIT #2 - SPRAY CELL 7M PLASMA. PROCESS HAS A WET COLLECTOR.	TMS	Y	GPA ✓
ACT	3356	511	MANLBP	PC-1031801---3356	TMS - SPRAY CELL	TMS UNIT #1 - SPRAY CELL USING PLASMA, WIRE AND THERMO SPRAY. PROCESS HAS A WET COLLECTOR.	TMS	Y	GPA ✓

SAI?	NESH	COMMENTS_REM	AerospaceNES	AerospaceExer	Building	Comments	Inspector
Y	N		☐		511	FLAME SPRAY MISSLE TRAILERS AND VARIOUS AIRCRAFT PARTS	Don
Y	N		☐		511	FLAME SPRAY MISSLE TRAILERS AND VARIOUS AIRCRAFT PARTS	Don
Y	N		☐		511	FLAME SPRAY MISSLE TRAILERS AND VARIOUS AIRCRAFT PARTS CONTROL ID#3839	Don
Y	N		☐		511	FLAME SPRAY MISSLE TRAILERS AND VARIOUS AIRCRAFT PARTS STACK ID 34778, CONTROL ID 3383	Don
Y	N		☐		511	FLAME SPRAY MISSLE TRAILERS AND VARIOUS AIRCRAFT PARTS CONTROL ID 3926 STACK ID	Don
Y	N		☐		511	FLAME SPRAY MISSLE TRAILERS AND VARIOUS AIRCRAFT PARTS CONTROL ID# 3412 STACK ID#	Don
Y	N		☐		511		Don
Y	N		☐		511	INSTALLED BUT NOT USED AS OF 6 FEB 03	Don
Y	N		☐		511	MISSILE TRAILERS AND VARIOUS AIRCRAFT PARTS-CONTROL ID 3379-STACK ID 3429	Don
Y	N		☐		511	FLAME SPRAY MISSLE TRAILERS AND VARIOUS AIRCRAFT PARTS CONTROL ID 3975 STACK ID 3997	Don

qry_14	UPID6	BLDG	OFFICE_S	PROCESS_ID	PROCESS_NAME	PROCESS_DESC	SOURC	OSI?	why?
ACT	36920	511	MAN	PC-10313262--36920	TMS - SPRAY CELL	TMS UNIT #7 - PLASMA ARC FLAME SPRAY BOOTH, AUTOMATED CONTROL FIXED MOUNT. PROCESS HAS	TMS	Y	GPA
ACT	3387	511	MANLBP	PC-1031807---3387	TMS - SPRAY LATHE	TMS UNIT #5 - SPRAY LATHE USING ARC WIRE AND PLASMA. (NO EMISSION CONTROLS)	TMS	Y	GPA
ACT	3391	511	MANLBP	PC-1031940---3391	TMS - SPRAY LATHE	TMS UNIT #4 - SPRAY LATHE USING ARC WIRE. (NO EMISSION CONTROLS)	TMS	Y	GPA
ACT	3686	511	MANLBP	PC-10312398--3686	TMS - SPRAY LATHE	TMS UNIT #3 - SPRAY LATHE USING ARC WIRE. (NO EMISSION CONTROLS)	TMS	Y	GPA

SAI?	NESH	COMMENTS_REM	AerospaceNES	AerospaceExer	Building	Comments	Inspector
Y	N		☐		511		Don
Y	N		☐		511	FLAME SPRAY MISSLE TRAILERS AND VARIOUS AIRCRAFT PARTS STACK ID # 3437	Don
Y	N		☐		511	FLAME SPRAY MISSLE TRAILERS AND VARIOUS AIRCRAFT PARTS STACK ID 3438.	Don
Y	N		☐		511	THIS BOOTH WAS MODIFIED WITH A NEW VENTING HOOD AND STACK. POC BLAKE 7-3485	Don

OO-ALC/EM
7274 Wardleigh Road
Hill AFB, UT 84056-5137

January 9, 2003

Mr. Richard Sprott
Executive Secretary
Utah Division of Air Quality
PO Box 144820
Salt Lake City, Utah 84114-4820

RE: Notice of Intent to Consolidate Degreasing Activities under an Approval Order

Dear Mr. Sprott

Hill Air Force Base (HAFB) currently conducts degreasing operations under approval orders DAQE-064-00, BAQE-353-88, and BAQE-026-88. These approval orders cover seventeen degreasers of which twelve are still in operation. HAFB also operates eighty-seven additional degreasers that are not included in the approval orders. HAFB requests that the approval orders be consolidated into a single approval order that covers all degreasing installations and provides the flexibility to add or modify degreasers without submitting additional permit applications provided the new or modified installations comply with a predetermined best available control technology (BACT). The format and content of the consolidated degreaser approval order will be similar to the format and content of the consolidated painting and abrasive cleaning permits recently issued by the Division of Air Quality (DAQ).

Affected Equipment

A list of proposed and active degreasers is provided in Attachment 1. This attachment lists the building, equipment identification number (or AQUIS), approval order, manufacturer, and volatile organic compound (VOC) emissions as reported in the 2000 and 2001 annual emission inventories (AEI). Additional discussion of the emission estimates is provided in the Emissions section below. Attachment 1 only lists equipment specifically designed and manufactured for degreasing. Some degreasing activities, mainly touchup activities, at HAFB are conducted using small quantities of solvent over/in small containers. These activities are transient and account for a small quantity of the overall solvent usage at HAFB. HAFB does not believe that it is practical or beneficial to include these activities in the list of degreasers provided in Attachment 1 or any list of degreasers that would be required pursuant to the AO developed from this notice of intent (NOI). HAFB does conduct these incidental-degreasing activities using good housekeeping procedures and emissions are currently tracked in the AEI.

Attachment 1 does not list equipment used to clean painting equipment. From the definitions provided in UAC R307-335-1 it is clear that solvent metal cleaning and degreasing is the process of cleaning soils and grease from metal surfaces. Solvent metal cleaning and degreasing does not include the removal of paint from surfaces. The approval order should clearly specify that only equipment used to remove soils and grease from metal surface are subject to the requirements of the approval order.

At this time, all of the degreasers located at HAFB are classified as cold cleaners. As noted in Attachment 1, some of the degreasers can be operated as vapor degreasers. However, these degreasers are only operated in the cold cleaning mode and are subject to the State rule for cold cleaners under UAC R307-335-2. HAFB only has one degreaser which is subject to the National Emission Standards for Halogenated Solvent Cleaning under 40 CFR 63 Subpart T (see Attachment 1). All other units previously operated using halogenated solvents have been removed or are no longer operated with halogenated solvents.

Emissions

Table 1 below summarizes emissions from listed in approval orders DAQE-064-00, BAQE-353-88 and BAQE-026-88, and the 2000 and 2001 AEIs. The AEI emission estimates were computed assuming all VOCs present in solvents used during the year are emitted. This method provides a conservative estimate of emissions and would be significantly lower if the VOC content of waste solvents was considered. It should also be noted that the AEIs cover more degreasers than are currently listed in approval orders. However, the AEI emission estimates are at or under the total of allowable emissions provided in the approval orders.

TABLE 1. EMISSIONS FROM DEGREASING OPERATIONS.

Pollutant	Existing Approval Orders, tpy*	2000 Annual Emission Inventory, tpy	2001 Annual Emission Inventory, tpy	Proposed Allowable Emission, tpy
VOC	8.3	5.1	8.4	15
Perchloroethylene	1.8	0	0	0.22
Methonal	0.064	0	0	0
Total HAPs	1.9	0.44	0.51	1.0

*DAQE-064-00, BAQE-353-88, BAQE-026-88

The proposed VOC allowable emission for the consolidated degreasing approval order was computed using emission factors and removal efficiencies provided in AP-42 section 4.6 titled Solvent Degreasing. As noted in the previous section, all of the degreases at HAFB are cold cleaners. AP-42 provides an uncontrolled organic emission factor of 0.33 tons/yr/unit for cold cleaners. HAFB currently has 99 cold cleaning units and the uncontrolled organic emissions from these cleaners is estimated at 33 tons per year (99

units * 0.33 tons/yr/unit). With the application of covers, drainage facilities, proper equipment use, and waste solvent reclamation, removal efficiencies of 28 to 83 percent can be obtained as specified in Table 4.6-3 of AP-42. Applying an average removal efficiency to the uncontrolled emissions, controlled organic emissions from degreasing equipment at HAFB are estimated to be 15 tons per year (1- (0.28+0.83)/2)*33 tons per year). This about twice the 2001 AEI emission estimate for degreasing operations at HAFB and provides a reasonable factor of safety considering 43 degreasers of the 99 listed in Attachment 1 were not operated in 2001.

Since HAP emission estimates are not provided in AP-42 for degreasers, the proposed allowable emissions for HAPs was computed as twice the 2001 AEI HAP emission estimate. As noted in the previous section, HAFB only has one operating halogenated solvent cleaning unit. The AQUIS for this unit is 3339. Allowable perchloroethylene emissions from unit 3339 under approval order DAQE-064-00 are 0.22 tons per year. Therefore, HAFB proposes that allowable perchloroethylene emissions under the consolidated approval order be 0.22 tons per year.

The change in allowable VOC emissions from the existing approval orders to the proposed consolidated approval order is not significant and criteria pollutant modeling is not required. Allowable HAP emissions will decrease; therefore, HAPs modeling is not required.

Best Available Control Technology

As discussed in the affected equipment section, all of the degreasers at HAFB are currently operated and/or designed as cold cleaners. These cold cleaners are subject to UAC R307-335-2. Additionally, unit 3339 located in building 279 is subject to the National Emission Standards for Halogenated Solvent Cleaners under 40 CFR 63 Subpart T. 40 CFR 63 Subpart T is more stringent than UAC R307-335-2. HAFB proposes that best available control technology (BACT) for all cold cleaners except halogenated solvent cleaners be compliance with R307-335-2. BACT for halogenated solvent cleaners will be compliance with 40 CFR 63 Subpart T.

HAFB believes that compliance with the UAC R307-335-2 should be considered BACT for cold cleaners based on information provided in the preamble for the proposed New Source Performance Standard (NSPS) for Cold Cleaning Machines (see preamble dated September 1994 available on EPA web site at http://www.epa.gov/ttn/atw/degrea/halopg.html). The "best demonstrated technology analysis"(BDT) conducted by the EPA in support of the proposed NSPS found that existing cold cleaning machines with a solvent to air surface contact area less than 1.8 m^2 require no additional controls other than those already in place. Cold cleaning machines with a solvent to air interface greater than 1.8 m^2 would require additional controls. HAFB does not currently have any cold cleaning machines with a solvent to air interface greater than 1.8 m^2 and proposes that BACT for units with a interface less than 1.8 m^2 units compliance with the UAC R307-335-2. The consolidated approval order would

only cover those units with a solvent to air interface less than 1.8 m^2. HAFB would submit an NOI for any proposed unit with a solvent to air interface greater than 1.8 m^2.

Monitoring, Record keeping and Reporting

Conditions II.B.15, 16, 17 and 19 of HAFB's Title V specify work practices, and monitoring, recordkeeping, and reporting requirements for cold cleaners. Conditions 16 and 17 will be eliminated through the consolidation process. The requirements of UAC R307-335-2 are provided in condition II.B.15. This condition requires that monthly visual inspections be conducted to monitor compliance with UAC R307-335-2. HAFB believes that monthly inspections are excessive as many of the requirements of condition II.B.15 pertain to the design of the cold cleaner and the emission potential for these units is low. HAFB proposes that monitoring be conducted during oversight inspections that conducted on a semi-annual basis. For halogenated solvent cleaners, HAFB will conduct monitoring recordkeeping and reporting in accordance with the 40 CFR 63 Subpart T.

Closure

HAFB requests the enhanced NSR process for this approval order so the Title V permit can be administratively amended. If you have any questions or wish to discuss the information contained in this letter, please do not hesitate to contact Glenn Palmer at 775-6918.

Sincerely

W. ROBERT JAMES
Director of Environmental Mgmt.